

REDUCTION OF SILICIDE FORMATION TEMPERATURE ON SiGe CONTAINING SUBSTRATES

ABSTRACT OF THE DISCLOSURE

A method that solves the increased nucleation temperature that is exhibited during the formation of cobalt disilicides in the presence of Ge atoms is provided. The reduction in silicide formation temperature is achieved by first providing a structure including a Co layer including at least Ni, as an additive element, on top of a SiGe containing substrate. Next, the structure is subjected to a self-aligned silicide process which includes a first anneal, a selective etching step and a second anneal to form a solid solution of (Co, Ni) disilicide on the SiGe containing substrate. The Co layer including at least Ni can comprise an alloy layer of Co and Ni, a stack of Ni/Co or a stack of Co/Ni. A semiconductor structure including the solid solution of (Co, Ni) disilicide on the SiGe containing substrate is also provided.